

## Lumbosacral Hypertrichosis Treated with the Normal-mode Ruby Laser

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Sir,

Lumbosacral hypertrichosis is an uncommon occurrence that constitutes a significant cosmetic problem. Treatment with electrolysis is difficult and surgical excision seems to be the only permanent option. Surgery carries the risk of significant scarring and electrolysis is often impractical where a large area is affected. Recently, long-term hair removal using normal-mode ruby laser has been convincingly demonstrated at facial sites (1), and has been recommended for other body sites (2). Laser treatment removes unwanted hair through the selective photothermolysis of melanin-rich structures and results in light energy absorption in hair follicles, causing destruction (3). There is minimal absorption by surrounding tissues and thus skin damage is avoided. The technique seems to be more effective for darker hair and fairer skin types. Lasers most frequently used in hair removal include ruby, diode, Nd:YAG and Alexandrite.

We performed a prospective study of patients specifically with lumbosacral hypertrichosis referred to our Laser Department for laser hair removal.

### MATERIAL AND METHODS

Seven female patients were identified during an 18-month period. All the patients had lumbosacral hypertrichosis with no evidence of spina bifida occulta. The age of the patients at the initial consultation ranged from 7 to 16 years with an average of 13 years. Hair colour varied from blonde and ginger to shades of brown. All the patients were treated with the Laseaway ruby laser (Lambda Photometrics Ltd., UK), in normal mode (694 nm wavelength, 950  $\mu$ s pulse duration) using a 5-mm spot size. An ice pack was offered before and after treatment. A test area was initially performed and then the patient had 3 full treatments at 2 monthly intervals. Six months after the final treatment, a doctor reviewed each patient, to determine whether permanent hair removal or reduced hair regrowth had been achieved.

### RESULTS

The mean fluence used was 20 J/cm<sup>2</sup> (range 15–23 J/cm<sup>2</sup>). Five patients had no visible change in hair density at the end of the treatment period. However, two patients have had cosmetically significant reductions in hair regrowth sustained 6 months after the last laser treatment and are continuing with treatment to the residual areas (Fig. 1). Interestingly, one patient has ginger hair but has had a good response to the



Fig. 1. Lumbosacral hypertrichosis in a 7-year-old girl with medium brown hair before treatment (left) and 6 months after the third treatment with normal-mode ruby laser (right).

ruby laser in normal mode. There were no complications following the treatments.

### DISCUSSION

The ruby laser in normal mode has been shown to be effective in long-term hair removal. In normal mode, the pulse width is much longer than in Q-switched mode and this duration allows thermal diffusion from the melanosomes to surrounding non-pigmented structures of the hair follicle. This results in thermal damage to the hair follicles.

Lumbosacral hypertrichosis is rare and can cause significant cosmetic and psychological distress. This study showed that hair removal with the normal-mode ruby laser in this area is well tolerated but persistence at 6 months was only demonstrable in a minority of patients with the laser variables used. Complete hair removal was not achieved but the regrowth after treatment was much thinner and lighter in colour. It has been proposed that the ruby laser can cause long-lasting or even permanent hair reduction by miniaturizing the coarse terminal hair follicles to vellus-like hair follicles (4).

Treatment fluences, pulse duration, spot size and the number of treatments are all important factors for achieving long-term hair reduction. An increasing dose-response effect with higher fluences (30–46 J/cm<sup>2</sup>) has been demonstrated in other studies (2, 4). Future studies with higher fluences, longer pulse duration and larger spot sizes should therefore be considered in order to produce better results. Although we have only demonstrated sustained improvement in a small number of patients, normal-mode ruby laser treatment may be worth considering in patients with this distressing condition.

## REFERENCES

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